

Summary:

For the October 28th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

The NAATBatt Index declined 4.3%, while U.S. and Asia Indices were up 4.8% and 2.6%, respectively. The S&P500 and Russell 2000 increased 4.4% and 6.9%, respectively.

Executive Director James Greenberger writes about the need for urgency with respect distributed energy storage technology and the need to accelerate the pace of DES demonstration projects. Read "***The China Clock***" in the Executive Director's Notes portion of this newsletter below.

Key Highlights:

- **Smith Electric Vehicles** and **Trans Tech Bus** have unveiled an all-electric school bus. The 42-passenger **Newton eTrans** travels up to 120 miles on a single charge at speeds of up to 50 mph.
- The **Hertz Corporation** announced the use of **BYD's eBUS-12** at **Los Angeles International Airport (LAX)**. The eBUS-12 is able to run 155 miles on a single charge in urban conditions with energy consumption less than 100 kWh per 60 miles.
- **Car Charging Group** has announced a partnership with **Ace Parking Management of California** to provide charging stations at various Ace Parking Facilities across the West Coast. Car Charging Group plans to install 240 volt charging stations powered by ChargePoint® Network and offer services to Ace Parking Customers.
- **Nissan** is aiming to sell 1.5 million electric vehicles (EVs) around the world by 2016. The company plans to add an additional seven models across the **Nissan** and **Renault** group.
- **Hydro-Québec** and **Technifin** (a subsidiary of **South Africa's Council for Scientific and Industrial Research**) have entered into an intellectual property (IP) collaboration agreement relating to the licensing of their respective **lithium titanate spinel oxide (LTO)** technologies. Technology transfer and know-how will be provided with the support of Hydro-Québec researchers to enable rapid and efficient implementation of the technology in battery products.
- **BYD** has begun selling its **all-electric E6** to consumers in **China**. The EV has a range of 300 kilometers (188 miles) per charge at a sticker price of 369,800 yuan (\$58,200). However, buyers in **Shenzhen** could qualify for as much as 120,000 yuan (\$18,878) in subsidies according to the **National Development and Reform Commission's** Shenzhen branch.
- **Pininfarina** has unveiled a hybrid diesel-electric bus prototype at a transport exhibition in **Milan**. The ebus was originally inspired to start the Hybus project to combat pollution in **Turin**.
- Only 106 electric cars were bought in 3Q11 in the **U.K.** through the "**plugged-in car grant**" scheme. However, the **Society of Motor Manufacturers and Traders (SMMT)** pointed out that all electric car registrations – both inside and out of the grant scheme – have gone from 167 in 2010 to 940 in 2011.
- **Mitsubishi Fuso Truck and Bus Corporation (MFTBC)** is testing a hybrid-electric version of its **Super Great heavy-duty highway** truck. **Daimler Trucks' Global Hybrid Center (GHC)** is developing the hybrid heavy-duty truck.

- A **Palo Alto** city council committee has signed off on a set of guidelines for creating a citywide network of charging stations and encouraging adoption of the emerging technology. The city, meanwhile, is averaging 20 permit requests per month for charging stations.

A Few More Details:

Smith Electric Vehicles and Trans Tech Bus have unveiled an all-electric school bus (as shown in **Exhibit 1**). The 42-passenger Newton eTrans travels up to 120 miles on a single charge at speeds of up to 50 mph. The bus also utilizes Smith Power's latest in lithium ion (li-ion) battery and regenerative braking technology that will transfer energy from the brakes to the batteries when the vehicle is in operation.

Source: Smith Electric Vehicles

Exhibit 1: Electric Trans Tech Bus



Source: Fox News

The Hertz Corporation announced the use of BYD's eBUS-12 at Los Angeles International Airport (LAX). Hertz is testing the ebus on its main routes to gain data on this new platform. The eBUS-12 is able to run 155 miles on a single charge in urban conditions with energy consumption less than 100 kWh per 60 miles. With a lower cost of ownership than a traditional gas powered bus, replacing just one traditional bus with the eBUS will reduce emissions by over 320 kg of CO₂ (per 150 miles traveled) and save Hertz an average of \$76* per day, per bus in fuel costs! (*32 gallons of diesel at \$3.20/gal are replaced with \$25.92 in electricity for \$0.08/Kwh -- the nighttime EV charge rates in LA).

Source: The Hertz Corporation

Car Charging Group has announced a partnership with Ace Parking Management of California to provide charging stations at various Ace Parking Facilities across the West Coast. Ace Parking manages over 450 parking locations in eight states, including office, retail, hotel, airport parking and shuttles, stadium, arena and event parking and hospitals and medical centers. Car Charging Group plans to install 240 volt charging stations powered by ChargePoint® Network and offer services to Ace Parking Customers. The companies will share in the proceeds generated by these charging services.

Source: Car Charging Group

Nissan is aiming to sell 1.5 million electric vehicles (EVs) around the world by 2016. The company has sold 15,000 Leaf electric cars. Nissan plans to add an additional seven models across the Nissan and Renault group.

Source: AFP

Hydro-Québec and Technifin (a subsidiary of South Africa's Council for Scientific and Industrial Research) have entered into an intellectual property (IP) collaboration agreement relating to the licensing of their respective lithium titanate spinel oxide technologies. Technology transfer and know-how will be provided with the support of Hydro-Québec researchers to enable rapid and efficient implementation of the technology in battery products. The Hydro-Québec/Technifin LTO patents comprise two separate groups of patent rights affording extensive worldwide protection for LTO technology.

Source: The Montreal Gazette

BYD has begun selling its all-electric E6 to consumers in China. The EV (as shown in **Exhibit 2**) has a range of 300 kilometers (188 miles) per charge with a sticker price of 369,800 yuan (\$58,200). Buyers in Shenzhen could qualify for as much as 120,000 yuan (\$18,878) in subsidies according to the National Development and Reform Commission's Shenzhen branch. China had announced in June 2010 it would provide buyers in Shanghai and four other cities up to 60,000 yuan (\$9,439) in subsidies for each electric car they purchase. Buyers of the E6 in Shenzhen will get an additional 60,000 yuan.

Source: *China Car Times*

Exhibit 2: The E6



Source: *Detroit Free Press*

Pininfarina has unveiled its hybrid diesel-electric bus prototype (as shown in **Exhibit 3**) at a transport exhibition in Milan. The ebus was originally inspired to start the Hybus project to combat pollution in Turin. The project has been undertaken with Turinese transport group GTT and battery maker FAAM. The Italian firm has converted a 17-year-old Iveco bus design to take a 1.3-litre Multi-jet diesel power unit coupled to an electric generator, which provides energy to the main lithium-ion battery pack.

Exhibit 3: Iveco Hybrid Electric Prototype



Source: *Autocar.uk.co*

Only 106 electric cars were bought in 3Q11 in the U.K. through the "plugged-in car grant" scheme. This quarter highlights another sluggish-take-up with 465 cars registered through the scheme in Q1 and 215 in Q2. However, the Society of Motor Manufacturers and Traders (SMMT) pointed out that all electric car registrations – both inside and out of the grant scheme – have gone from 167 in 2010 to 940 in 2011. The number of EVs in the U.K. is just 1,107 (compared with the country's 28.5 million cars). The scheme is due to be reviewed in January.

Source: *The Guardian*

MFTBC is testing a hybrid-electric version of its Super Great heavy-duty highway truck (as shown in **Exhibit 4**). The company claims the heavy-duty hybrids testing have shown an impressive 10% increase in fuel efficiency compared to conventional diesel-only powered vehicles. The energy from braking is sent to generator, which converts the brake energy into electric energy and stores it in the lithium-ion (li-ion) battery for future use. Daimler Trucks' GHC is developing the hybrid heavy-duty truck.

Source: Auto Business Review

Exhibit 4: MFTBC Heavy Duty Truck

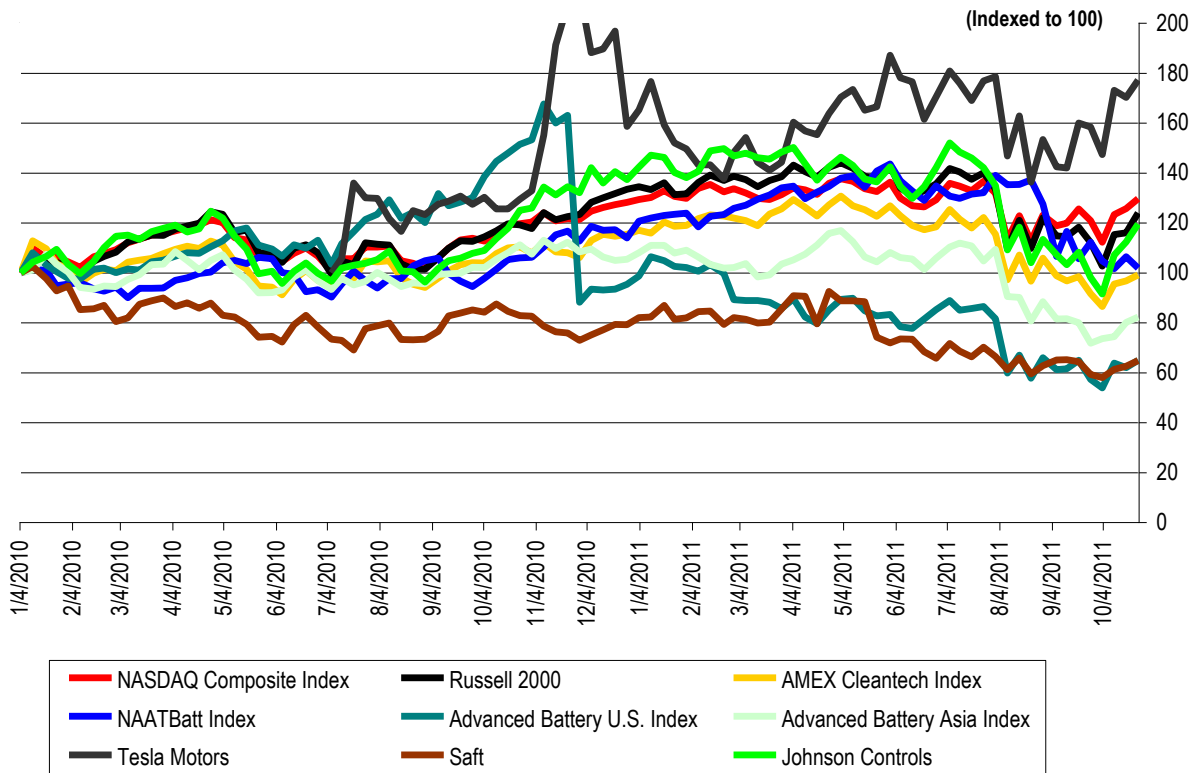


Source: PC Magazine

A Palo Alto city council committee has signed off on a set of guidelines for creating a citywide network of electric vehicle charging stations and encouraging adoption of the emerging technology. Based on a statewide California Energy Commission estimate, the city's utilities department anticipates anywhere from 3,000 to 10,000 electric vehicles to silently fill Palo Alto's streets by 2020. The city, meanwhile, is averaging 20 permit requests per month for charging stations.

Source: San Jose Mercury News

**Exhibit 5: Indices Performance
(From January 4, 2010)**

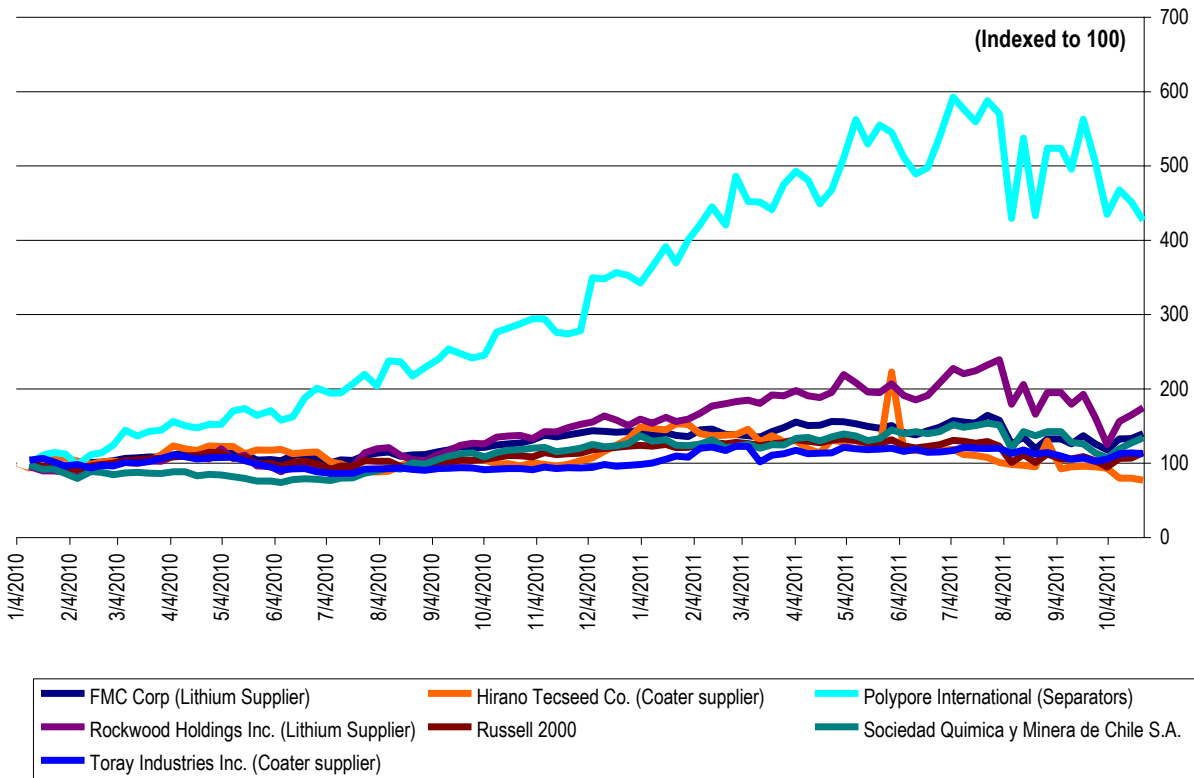


Index	Close on 10/24/2011	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	11,913.6	12,928.5	92.2%	7.0%	2.1%	4.5%
S&P 500	1,254.2	1,370.6	91.5%	5.9%	(1.4%)	4.4%
NASDAQ	2,699.4	2,887.8	93.5%	8.3%	0.3%	3.2%
Russell 2000	736.0	868.6	84.7%	4.3%	(7.8%)	6.9%
AMEX Cleantech Index	973.1	1,298.6	74.9%	(9.7%)	(15.3%)	2.5%

Source: Bloomberg and ThomsonOne

Note: The select NAATBatt Index is a market-value-weighted average and includes ALTI, BASF, COP, ENS and XIDE. The Advanced Battery U.S. Index is a market-value-weighted average and includes HEV, MGA, MXWL, UQM and VLNC. The Advanced Battery China Index is a market-value-weighted average and includes BYD, CBAK, GS Yuasa, LG Chem and Panasonic.

**Exhibit 6: Supplier Performance
(From January 4, 2010)**



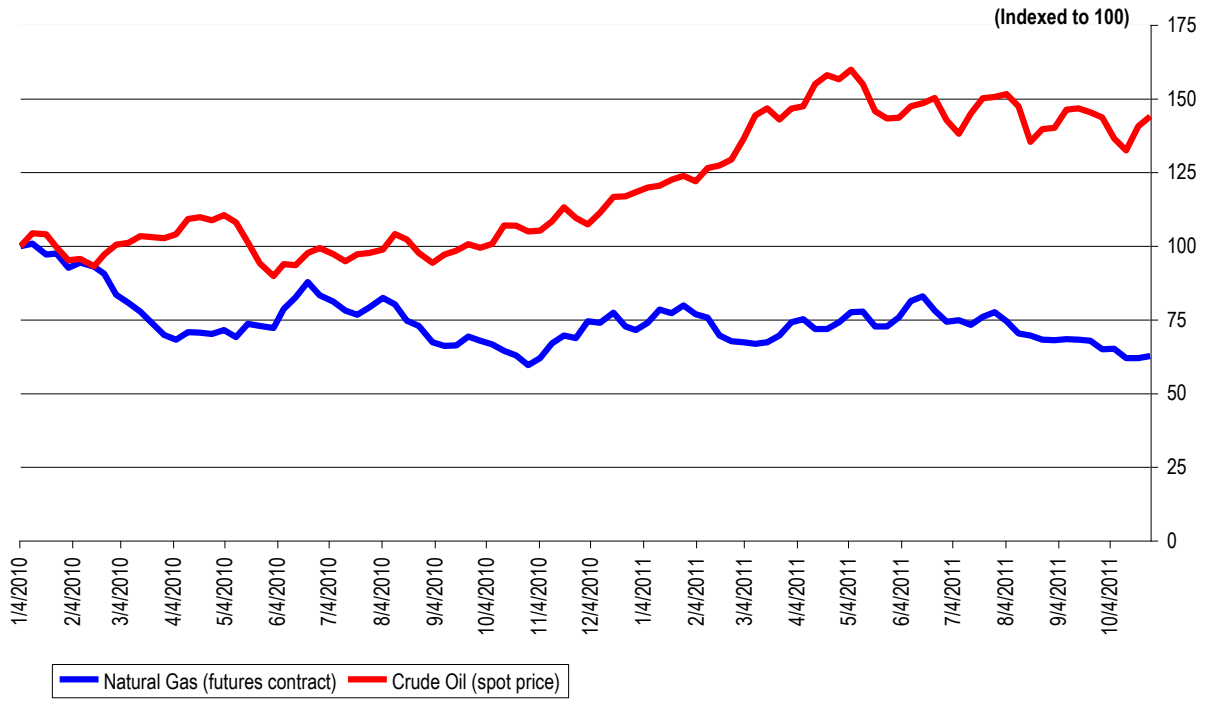
Source: Bloomberg

Exhibit 7: Commodity Prices

Commodity	Price on 10/24/2011	Price on 10/17/2011	Price on 9/23/2011	1 Week Change	1 Month Change
LME Copper (Cash, \$ per tonne)	7,380	7,565	7,280	(2.4%)	1.4%
LME Lead (cash, \$ per tonne)	1,940	1,990	2,045	(2.5%)	(5.1%)
LME Nickel (cash, \$ per tonne)	19,030	18,750	17,920	1.5%	6.2%

Source: LME

Exhibit 8: Natural Gas and Crude Oil
(From January 4, 2010)



Source: EIA

Executive Director's Notes



THE CHINA CLOCK

Last Monday NAATBatt hosted a meeting of the DES white paper working group in Detroit. The DES white paper group consists of leading advanced battery manufacturers, electric utilities, auto makers, electric power equipment companies and national laboratories working with KEMA, an energy consulting firm, to produce a white paper outlining the importance of distributed energy storage (DES) technology to U.S. energy policy. Among other things, the white paper will show that DES systems are necessary to enable the integration of high levels of renewable energy and electric vehicles onto the grid and are critical to ensuring the grid's stability and reliability. NAATBatt expects to publish the white paper later this year.

Yet while DES technology is promising, it is moving toward actual commercial deployment only at a glacial pace. The slow pace of DES' rollout was of grave concern to many in the working group. The barriers to DES deployment—high costs, limited operational experience, and unsupportive regulatory schemes—are real and, in some respects, daunting. The group spent much of its time discussing those barriers and how best to address them.

A central theme of the working group's discussion was the need for more demonstration projects for DES technology. But many in the group voiced concern about the agonizingly slow pace of the demonstration projects that have been funded to date. Large demonstration projects can take as long as six years to complete. Several participants questioned the value of such projects in light of the fact that DES has so many diverse applications and that energy storage technology itself is changing so rapidly. Death by demonstration project is a specter that hangs over many in the U.S. energy storage industry today.

Several participants noted that things seem to work differently in China. In China, projects appear typically to move from concept to full construction within one year. The ability to move quickly was noted as one of the major reasons why American companies seek to locate operations in China. The "China clock", as one participant called it, has major advantages for business, particularly businesses that rely on new and quickly evolving technology.

Although the white paper will contain many suggestions about how the U.S. can more effectively deploy DES technology, one of the suggestions will be that the U.S. and the U.S. Department of Energy start living on the China clock. While much money has been spent demonstrating grid-connected energy storage technology over the past few years, the pace of development has been far too slow. The slow

pace threatens the survival of many American firms that have invested heavily (and often with substantial government co-investment) in energy storage technology.

A better approach is needed to the design of demonstration projects in the grid-connected energy storage area. Demonstration projects are critical to the development and eventual commercial deployment of DES technology. But there need to be more of these projects and they need to be more diverse. Most importantly, they need to be awarded, constructed and completed more quickly.

In short, we need to adopt the China clock. Smaller, more numerous, more diverse and more rapid demonstration projects are the key to developing DES technology and realizing the advantages it holds for the grid. Money for DES demonstration projects is good, and more money is better. But what is really needed is a sense of urgency. Time to completion must become a major focus for government-funded demonstration projects going forward. We must learn to push the time envelope and to push it consistently as a matter of practice, just as they do in China.



James J. Greenberger
Executive Director

October 28, 2011

NAATBatt Membership Applications for 2011

2012 Membership Applications and Dues Structure

NAATBatt is now accepting applications for membership for the 2012 calendar year. Membership dues for 2012 are \$10,000 for Corporate Members, \$10,000 for OEM Members, \$10,000 for Utility Members, \$5,000 for Associate Members, \$1,000 for Individual Members, and \$500 for Non-Profit/Government Members. Companies purchasing 2012 memberships will be entitled to the benefits of membership during the balance of the 2011 calendar year. Please click on <http://naatbatt.org/membership-inquiry/> and indicate that you are interested in a 2012 membership.

Why Join NAATBatt?

NAATBatt's mission is to grow the market for advanced electrochemical energy storage technology in North America. We concentrate primarily on two markets: electric drive for motor vehicles and distributed, grid-connected electricity storage.

NAATBatt members enjoy a variety of exclusive benefits including: discounted admission to NAATBatt conferences; admission to by invitation-only NAATBatt workshops, such as the Workshop on Distributed Energy Storage that NAATBatt co-sponsored last April in Chicago with the U.S. Department of Energy; admission to Members-Only Site Visits, at which one NAATBatt firm will host all other NAATBatt members for a tour of the host's facility; the opportunity to announce news and new product developments in the Member's News section of the widely read NAATBatt Advanced Battery Weekly; free access to speaker presentations made at NAATBatt programs and workshops; and invitations to attend private meetings with government leaders, such as the NAATBatt-sponsored trip to Washington last year to meet with Chairman Jon Wellinghoff of FERC.

NAATBatt membership also helps support the development of an important industry that could just change the world. NAATBatt provides educational programming on topics of interest to the advanced battery community, a weekly newsletter chronicling developments in the North American advanced battery market, networking opportunities for industry participants and their customers, and thought leadership on issues relating to energy storage markets and technology through the NAATBatt blog.

NAATBatt recently held its 2nd Annual Meeting and Conference in Louisville, Kentucky, which included the 1st Industry-Academic Advanced Battery Summit. The Summit is a new program that NAATBatt has started to encourage the more efficient transfer of advanced battery technology from leading U.S. research universities to industry. NAATBatt identified and brought to Louisville representatives from 15 of the top university advanced battery programs around the country to make flash presentations to industry about what those programs are working on and what technology they have available to license. In all there were 48 high quality presentations made at the Conference and the Summit, copies of which are available to conference attendees and NAATBatt members only.

NAATBatt will soon announce two other initiatives for the benefit of its members that will increase their access to capital and play an important role in growing the market for advanced electrochemical energy storage. Please stand by for some very interesting developments.



NAATBatt is a not-for-profit trade association qualified under Section 501(c)(6) of the Internal Revenue Code that is working for the benefit of the entire industry. Every dollar spent on NAATBatt memberships and programs goes to recouping program costs and to supporting activities intended to benefit the entire advanced battery industry. At a time when it seems that the only people making money on advanced lithium-ion technology are professional conference organizers, the advanced battery industry should take control of its own market and its own future. NAATBatt exists to market for the industry, not to the industry. But NAATBatt needs your support to do it. Please join us.

North American Industry Announcements and Calendar

Presentations from the NAATBatt 2011 Annual Meeting and Conference Now Available:

Speaker presentations, speaker bios and attendee lists from the just concluded NAATBatt's 2011 Annual Meeting and Conference are now available on the NAATBatt Web site. Go to www.naatbatt.org and navigate to the 2011 Annual Meeting and Conference link to view them. The links are password protected, and the password is available to NAATBatt members and conference attendees for no charge. Others may purchase access to the presentations for \$250. Please contact Jim Greenberger at jgreenberger@naatbatt.org for your password. Photos from the conference will be posted shortly.

Presentations from the Workshop on Distributed Energy Storage Posted: Presentation materials, handbooks, attendee lists and working group discussion summaries from the April 21, 2011 DOE/NAATBatt Workshop on Issues in Distributed Energy Storage have been posted on the NAATBatt Web site at: www.naatbatt.org. The materials are available for review to all Workshop registrants and to all NAATBatt members. Please contact Jim Greenberger at jgreenberger@naatbatt.org for your password.

Presentations from the NAATBatt 2010 Annual Meeting and Conference are Available:

NAATBatt's 2010 Annual Meeting and Conference entitled "The Impact of PEV's on T&D Systems: Challenges and Solutions" was a great success. More than 40 industry experts presented and the conference on topics relating to how the grid was going to accommodate the new load that will be generated by plug-in electric vehicles. Copies of the speaker presentations are available on a secured portion of the conference Web site. Access to the Web site is free to NAATBatt members and conference attendees. Access to the presentations is now available to all other for the price of \$250. Please contact Jim Greenberger at jgreenberger@naatbatt.org for more information about accessing the presentations.

NAATBatt Membership Information. NAATBatt is taking applications for membership from well qualified industry participants and supporters. Membership in NAATBatt is a great way to keep abreast of developments in advanced technology batteries and to support the growth of a market for products that could change the world. Your support for NAATBatt programs, newsletters, and committees is essential to the success of our organization and our industry. To inquire about membership, please complete the following inquiry form: <http://naatbatt.org/membership-inquiry/>. NAATBatt will respond with additional information about membership.

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- ***Lithium Battery Power Conference:*** Knowledge Foundation will host the Lithium Battery Power Conference on **November 7-8, 2011** in Las Vegas, Nevada. The conference will provide a general survey of the lithium-ion battery industry. The conference Web site can be accessed at: http://www.knowledgefoundation.com/viewevents.php?event_id=254&act=evt.
 - ***Battery Safety Conference and Global Battery Tutorial:*** Knowledge Foundation will host the Battery Safety Conference followed by Shmuel De-Leon Energy's Global Battery Tutorial on **November 9-10, 2011** in Las Vegas, Nevada. The conference will discuss safety incidents and

product recalls regarding lithium-ion batteries. The conference Web site can be accessed at: http://www.knowledgefoundation.com/viewevents.php?event_id=254&act=evt.

- **1st NY-BEST Regional Technology Conference:** The 1st NY-Best Regional Technology Conference, highlighting developments in energy storage technology at leading New York universities, will be held on **November 15-16, 2011** at Woodcliff Hotel & Spa in Rochester, New York. Information about the conference can be found at: <http://www.ny-best.org/civicrm/event/info?id=7&reset=1>
- **1st North American & Asian Lithium-Ion Technology Conference:** The North American & Asian Lithium-Ion Technology Conference will be held on **January 12, 2012** at the University of Nevada Las Vegas in Las Vegas, Nevada. The conference is co-sponsored by UNLV and an affiliate of the Lion Battery Industry Association of South China. More information about the conference can be found at: <http://lbiana.org/industry-events/>
- **International Battery Association – Pacific Power Source Symposium Joint Meeting 2012:** The 2012 meeting of the International Battery Association and Pacific Power Source Symposium will be held on **January 9-13, 2012** at the Hilton Waikoloa Village in Hawaii. Information about the program may be viewed at: <http://www.soest.hawaii.edu/PPSS/index.htm>.
- **IEEE PES Conference on Innovative Smart Grid Technologies:** The IEEE PES Conference on Innovative Smart Grid Technologies will be held on **January 16-20, 2012** at the Washington Marriott Wardman Park hotel in Washington, D.C. The conference will examine a wide range of smart grid technologies, including energy storage. Information about the conference can be found at: <http://www.ieee-isgt.org/>
- **2nd Annual 10X Advanced Battery R&D:** The 10x Advanced Battery R&D conference: Breaking Barriers in Advanced Battery Performance and Value will be held on **January 23-24, 2012** in Santa Clara, California. The conference will examine next generation technologies that may dramatically reduce battery costs and/or increase battery energy density. NAATBatt is a supporting organization of the conference.
- **12 International Advanced Automotive Battery Conference:** The 2012 International Advanced Automotive Battery Conference (AABC) will be held on **February 6-10, 2012** in Orlando, Florida. The program will feature five days of intensive meetings, symposia and tutorials. Information about the program can be found at: <http://www.advancedautobat.com/>.
- **The 29th International Battery Seminar & Exhibit:** Powersources.net will present the 29th International Battery Seminar & Exhibit at the Broward County Convention Center in Fort Lauderdale, Florida on **March 12-15, 2012**. The Seminar will discuss the state of the art of worldwide energy storage technology developments for portable products, power and vehicular applications. The Web site for the conference can be found at: <https://powersources.net/florida/frameset.html>.
- **International Electric Vehicle Symposium:** The Electric Drive Transportation Association will produce the 26th international Electric Vehicle Symposium and exposition (EVS26) on **May 6-9, 2012** in Los Angeles, California. Information about EVS26 can be found at www.EVS26.org.
- **IEEE PES Transmission and Distribution Conference and Exposition:** The IEEE PES Transmission and Distribution Conference will be held in Orlando, Florida on **May 7-10, 2012**.

The conference will focus on innovation in power delivery systems, including storage systems. Information about the conference can be viewed at: <http://www.ieeet-d.org/>.

- **5th Symposium on Energy Storage: Beyond Lithium Ion:** The 5th Symposium on Energy Storage: Beyond Lithium Ion will be held in Berkeley, California on June 5-7, 2012. The Symposium will focus on next generation battery technologies, such as silicon anode technology, lithium sulfur batteries and lithium air. More information can be found at: <http://bestar.lbl.gov/bli5/program/>.



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